UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,322	08/01/2003	Munenori Oizumi	TI-35909	5221

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EXAMINER
ROSARIO, DENNIS

ART UNIT	PAPER NUMBER
2624	

NOTIFICATION DATE	DELIVERY MODE
05/22/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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PTOL-90A (Rev. 04/07)

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<tr><td rowspan="2">Office Action Summary</td><td>Application No.</td><td>Applicant(s)</td><td></td></tr>
<tr><td>10/632,322</td><td>OIZUMI ET AL.</td><td></td></tr>
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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 April 2007*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 April 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   The amendment was received on 4/9/07. Claims 1-5 are pending.

Drawings

2.   Due to the amendment, the objection to the drawings is withdrawn.

Specification

3.   Due to the amendment, the objection to the specification is withdrawn.

Claim Rejections - 35 USC § 112

4.   The 112 rejection of claims 1-5 are maintained in the office action of 1/10/07 all

of which is incorporated herein. See Response to Arguments, below, for further

explanation.

Response to Arguments

5.   Applicant's arguments filed 4/9/07 have been fully considered but they are not

persuasive and states:

"…page 9, line 8 illustrates…interpolation; namely, $(1-i)x(n) + (i)y(n)$. And Belykh

has no suggestion of the claimed interpolation."

6.   In response to applicant's argument that the references fail to show certain

features of applicant's invention, it is noted that the features upon which applicant relies

(i.e., "interpolation") are not recited in the rejected claim(s). Although the claims are

interpreted in light of the specification, limitations from the specification are not read into

the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Note that the "interpolation" can be an active step of interpolating or just a

description of interpolating without any active steps of interpolating. The claimed

"interpolating" is clearly an active step of interpolating and not just a description of

interpolation. The claimed active step of "interpolating" could not be found.

Page 9, section "(2)" corresponds to the claimed "interpolating" as indicated by

the applicant to correspond to page 9, line 8:

"More explicity, start with the simple low pass filter $x(n) \rightarrow y(n)=[x(n-1) +2x(n) +$

$x(n+1)]/4$ and then define the overall filtering to be $x(n) \rightarrow (1-i)x(n) + (i)y(n)$ where the

intensity $i =5(p-p_{th})/4$"

The above statement is just a description or illustration as applicant has stated in

the remarks on page 6,section 4,line 4: "illustrates" and not an active step of

interpolating.

Does the lowpass filtering perform filtering and interpolating simultaneously as suggested in x(n) →(1-i)x(n) + (i)y(n) where y(n) is a lowpass filter? Is lowpass filtering done first on an image then interpolating is done second on the lowpassed filtered image? If the answer to that last question is yes, please show support in the specification.

Claim Rejections - 35 USC § 102

7.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8.   Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by

Belykh et al. (US Patent 7,050,618 B2).

        Regarding claim 1, Belykh et al. or Belykh discloses a method of image filtering,

comprising:

        a)   computing a modified auto-correlation (fig. 2,num. 44) in a first direction

(fig. 2,num. 42) for each pixel in an image;

        b)   filtering (fig. 2,num. 68) said image with a lowpass filter ("lowpass filter" in

col. 6, line 51); and

        c)   interpolating said image and said filtered image from step (b) wherein said

interpolating at said each pixel depends upon said modified auto-correlation in a first

direction (limitation c) and any dependencies are not given patentable weight).

Regarding claim 2, Belykh discloses the method of claim 1, further comprising:

a)   after steps (a)-(c) of claim 1 repeating steps (a)-(c) of claim 1 with said first

direction (or HORIZONTAL of fig. 2,num. 42) replaced by a second direction (or

VERTICAL of fig. 2,num. 42), said second direction perpendicular to said first direction;

and

b)   with said image of step (c) replaced by said interpolated image using said

modified auto-correlation in a first direction.

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10.   Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable

Belykh t al. (US Patent 7,050,618 B2) further in view of Edgar (US Patent 6,442,301

B1).

Regarding the equation of claim 3, the structure of the claimed equation is not

given patentable weight and only the variables of the equation are given patentable

weight.

Regarding claim 3, Belykh teaches the method of claim 1, wherein:

a)   said modified auto-correlation of step (a) of claim 1 is $R_{xx}(1)/(R_{xx}(0)+\delta)$

where R_{xx} is the auto-correlation function (or "an auto-correlation function" in col. 5, line

32) for the pixel values in an interval about said each pixel (or "spatial pixel domain" in

col. 5, lines 15,16.

However, Belykh does not teach the claimed:

a) $R_{xx}(1)/(R_{xx}(0)+\delta)$; and

b)   DC component removed, and where δ is a parameter,

but does teach that auto-correlation and associated "numerical techniques... are

well known" in col. 6, lines 26,27. Thus, Belykh suggests to one of ordinary skill in the

art that a plurality of teachings of auto-correlation and associated numerical techniques

exists and to apply any of the teachings of auto-correlation and associated techniques

to Belykh's invention.

Edgar teaches auto-correlation in fig. 9B,num. 192 that could be used with He's invention and the remaining limitations of claim 3 of:

a)   a modified auto-correlation is $R_{xx}(1)/(R_{xx}(0)+\delta)$ (or "gain measuring correlation" in col. 13, lines 49,50) where R_{xx} is the auto-correlation function (wherein said gain measuring correlation includes an "autocorrelation" in col. 13, line 49) for the pixel values in an interval (via a "3 X 3 element region" in col. 13, line 40) about said each pixel and with the DC component removed (or "eliminates the...'DC' term" in col. 8, lines 29,30), and where δ is a parameter (or "nine" in col. 13, line 43 corresponding to said 3 X 3 element region that could be "larger" in col. 13, line 33; thus, said nine is a selectable parameter.).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Belykh's teaching of auto-correlation with Edgar's teaching of auto-correlation, because Edgar's teaching provides a "corrected image" in col. 7, line 30 using "autocorrelation" in col. 7, line 29.

Regarding claim 5, Edgar of the combination teaches the method of claim 1, wherein:

a)   said image is a color channel ("green image signals" in col. 4, line 32) of a color image.

Conclusion

11.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

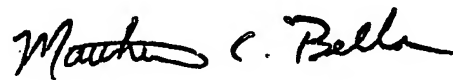than SIX MONTHS from the mailing date of this final action.

12.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Dennis Rosario whose telephone number is (571) 272-

7397. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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